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United States Government **Department of Energy**

memorandum

DATE: July 19, 2004

REPLY TO ATTN OF: Office of Air, Water and Radiation Protection Policy and Guidance (EH-41):Boulos:6-1306

SUBJECT: Analysis of the Environmental Protection Agency's Refrigerant Recycling Final Rule for Substitute Refrigerants for the Protection of Stratospheric Ozone

TO: Distribution

The purpose of this memorandum is to provide Department of Energy (DOE) program offices and field organizations with an analysis of the Environmental Protection Agency's (EPA) final rule, "Protection of Stratospheric Ozone; Refrigerant Recycling; Substitute Refrigerants." The final rule (69 FR 11946; March 12, 2004) is available at the EH-41 Home Page at: http://www.eh.doe.gov/oepa/rules/69/69fr11946.pdf.

This amended rule clarifies how the requirements of Section 608 of the Clean Air Act apply to refrigerants that are used as substitutes for chlorofluorocarbon (CFC) and hydrochlorofluorocarbon (HCFC) refrigerants. The regulations are applicable to DOE and DOE contractor and subcontractor organizations that are responsible for the maintenance, servicing, repair, or disposal of air conditioning and refrigerant appliances, including motor vehicle air conditioners.

Questions on the final rule can be directed to Mr. Emile Boulos of my staff at: emile.boulos@eh.doe.gov; 202-586-1306.

Andrew Wallo
Director
Office of Air, Water and Radiation
Protection Policy and Guidance

Attachment

DISTRIBUTION: 07/20/04

Analysis of a Clean Air Act Final Rule on," Protection of Stratospheric Ozone; Refrigerant Recycling; Substitute Refrigerants."

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Center for Environmental Management Information

FINAL RULE: 40 CFR Part 82, "Protection of Stratospheric Ozone; Refrigerant Recycling; Substitute Refrigerants," (69 FR 11946; March 12, 2004).[1]

Overview

On March 12, 2004, the Environmental Protection Agency (EPA) issued a final rule (69 FR 11946) that (i) explains certain statutory prohibitions on venting refrigerants into the atmosphere; (ii) exempts some substitute refrigerants from the venting prohibition; this was based on current evidence that their release does not pose a threat to the environment; (iii) amends the current refrigerant recovery and recycling requirements for chlorofluorocarbon (CFC) and hydrochlorofluorocarbon (HCFC) refrigerants to accommodate the proliferation of new refrigerants on the market; and finally (iv) the rule clarifies that the "venting prohibition applies to all refrigerants for which the EPA has not made a determination that their release does not pose a threat to the environment." The EPA's final rule was effective on May 11, 2004.

Entities potentially regulated by the EPA's final rule include those that manufacture, own, maintain, service, repair or dispose of all types of air-conditioning and refrigerant appliances, including motor vehicle air conditioners (MVACs).

Department of Energy (DOE) program offices and field organizations need to be aware of, and take steps to adhere to, the requirements of this final rule if they are involved in regulated activities applicable to the venting of refrigerants into the atmosphere. This would be related to the work of DOE staff and Maintenance and Operation contractors or subcontractors who might be responsible for maintaining, servicing, repairing or disposing of appliances, including air conditioning equipment, refrigerators and MVACs, which contain substitute refrigerants.

Background

Effective November 15, 1995, Section 608 (c)(2) of the Clean Air Act (CAA) prohibits the knowing release of substitutes for CFC and HCFC refrigerants during the maintenance, service, repair, or disposal of air-conditioning and refrigeration equipment, unless EPA determines that such release does not pose a threat to the environment. On June 11, 1998, EPA published a Notice of Proposed Rulemaking (NPRM) (63 FR 32044) that outlined the requirements for substitute refrigerants, including extending the regulatory framework to encompass hydrofluorocarbon (HFC) and perfluorocarbon (PFC) refrigerants. In this final rule, the EPA concluded that the venting prohibition of Section 608(c)(2) will continue to remain in effect for HFC and PFC substitute refrigerants. In addition, the final rule clarifies the handling and sales of ozone-depleting

[1] Corrections to this final rule were promulgated by the Environmental Protection Agency on April 13, 2005 (70 FR 19273; available at http://www.eh.doe.gov/oepa/rules/70/70fr19273.pdf). A June 28, 2005, EH-41 memo that discusses these corrections is available at http://www.eh.doe.gov/oepa/guidance/ozone/directfinal4-13-05.pdf.

refrigerants that are applicable to substitute refrigerants, primarily HFC refrigerant blends, containing ozone-depleting substances (ODSs). It does not, however, extend the refrigerant sales restriction[2] to pure HFC and PFC refrigerants. Leak repair requirements for appliances containing substitutes for ODSs are not addressed in the final rule, nor are certification requirements for refrigerant recovery or recycling equipment intended for use with substitute refrigerants.

Key Elements of the EPA's Final Rule

The following summarizes several key provisions of the EPA's final rule for Section 608(c)(2) of the CAA, including the determination of a threat to the environment, required practices, safe disposal of small appliances, certification, servicing, and reporting and record keeping.

Determination of Whether a Release Poses a Threat to the Environment

To implement Section 608(c)(2), the EPA had to determine: (i) the potential effects for each class of refrigerant from the moment of release to its breakdown in the environment, and (ii) the extent to which the release of substitute refrigerants is already controlled under other authorities. These determinations are finalized in the following:

- **HFC and PFC Refrigerants.** The EPA found that HFCs can displace oxygen, and at high concentrations can act as a depressant on the central nervous system and can have cardio-toxic effects. When released to the atmosphere, HFCs and PFCs have the ability to trap heat and have a relatively long atmospheric lifetime. The EPA concluded that HFC and PFC refrigerants have adverse environmental effects.

- **Other Classes of Refrigerants**. The EPA examined the health and environmental effects of chemically active common gases used as refrigerants (i.e., ammonia and chlorine), hydrocarbons (HC), which are volatile organic compounds, and inert atmospheric constituents such as carbon dioxide (CO_2). In each case, the Agency concluded that these classes of refrigerants did not pose a threat to the environment and, therefore, their use as substitute refrigerants was exempt from the venting prohibition.

Required Practices

The following summarizes certain service practices that minimize emissions from CFC and HCFC equipment (Section 82.156):

- **Evacuation of Appliances.** The EPA amended the system for classifying appliances and clarified how evacuation requirements apply to appliances

[2] In accordance with the regulations promulgated under Sections 608 and 609 of the CAA, only certified technicians may purchase Class I or Class II refrigerants.

containing substitute refrigerants that consist, in whole or in part, of a Class I or Class II ODS.

- **Extension of the Refrigerant Standard to Substitute Refrigerants**. The EPA adopted refrigerant standards for those substitute refrigerants listed in the Air-Conditioning and Refrigeration Institute (ARI) Standard 700-1995[3] that consist, in whole or in part, of an ODS.

- **Servicing MVACs and MVAC-like Appliances Containing Substitute Refrigerants**. MVACs are essentially identical to MVAC-like appliances. Many of the CAA Section 608 ("National Recycling and Emission Reduction Program") requirements that are published at Subpart F for MVAC-like appliances simply refer to the CAA Section 609 ("Servicing of Motor Vehicle Air Conditioners") requirements for MVACs that are published at Subpart B. However, there are slight differences between the two existing regulations, and the final rule provides amendments that reflect these differences. The final rule, therefore, clarifies the definition of a MVAC-like appliance and the certification of technicians.

- **Technician Certification.** The EPA's final rule (Section 82.161) will not require the certification of technicians who work exclusively with HFC and PFC refrigerants that do not consist of Class I and Class II ODS. The final rule also clarifies that certification is required in order to maintain, service or repair appliances (other than small appliances, MVACs and MVAC-like appliances) containing a substitute consisting of a Class I or Class II ODS.

- **Refrigerant Sales Restriction.** The EPA extended the sales restriction to those substitutes that contain a Class I or Class II substance, thereby restricting the sale of most HFC refrigerant blends to certified technicians.

- **Safe Disposal of Small Appliances, MVACs and MVAC-like Appliances.** The EPA decided to extend safe disposal requirements to those substitutes containing an ODS (Section 82.156(a) and (b)).

- **Certification by Owners of Recycling or Recovery Equipment.**..The EPA's final rule (Section 82.162) does not extend the certification requirement for those who maintain, service, repair or dispose of appliances containing HFC and PFC refrigerants, but does extend this provision to those who handle similar appliances with substitutes that contain a Class I or Class II ODS.

- **Servicing Apertures and Process Stubs.** The EPA is prohibiting the sale or distribution of CFC and HCFC appliances that are not equipped either with a

[3] This standard (found at Appendix A to Subpart F of 40 CFR Part 82) specifies acceptable levels of contaminants (i.e., purity standards) for various fluorocarbon and other refrigerants regardless of source and lists acceptable test methods.

process stub (in the case of small appliances) or with a servicing aperture (in the case of all other appliances) to facilitate refrigerant recovery (Section 82.154).

- **Prohibition on the Manufacture or Import of One-Time Expansion Devices.** The EPA's final rule (Section 82.154 (2)(p)) prohibits the manufacture or import of one-time expansion devices[4] (including self-chilling cans) that contain refrigerants other than those the EPA exempted from the venting prohibition. In taking this approach, the EPA concluded that the requirement is not too burdensome, and is more effective and efficient than attempting to prevent use by millions of potential consumers.

- **Reporting and Record Keeping.** In the final rule, the EPA finalized the reporting and record keeping requirements, but only as they apply to substitute refrigerants with a Class I and Class II ODS component (Section 82.166). This includes the following: retaining invoices by those persons who sell or distribute refrigerants; certified technicians keeping a copy of their certificate at their place of business; owners and operators of appliances keeping records that document the date and type of service; applications for approval to the EPA by recovery/recycling equipment testing organizations; signed statements from disposers of small appliances, room air conditioners, MVACs or MVAC-like appliances; and applications for approval to the EPA and maintenance of records by organizations operating technician certification programs.

[4] One-time expansion device means an appliance that relies on the one–time release of its refrigerant charge to the environment in order to provide a cooling effect.